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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,410	02/14/2006	Domonique Teyssie	285619US0PCT	7551
22850	7590	07/29/2010		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER ZEMEL, IRINA SORFIA				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
07/29/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
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### Office Action Summary

**Application No.**

10/568,410

**Applicant(s)**

TEYSSIE ET AL.

**Examiner**

Irina S. Zemel

**Art Unit**

1796

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,6-11 and 13-21 is/are pending in the application.
- 4a) Of the above claim(s) 11 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-10,14-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 -3, 7-10, and 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 11-189607 to Kanegafuchi '607.

The rejection stands as per reasons of record. As discussed above, the claimed invention is limited to "interpenetrating polymers", which limitation is met by any polymer chains interlacing on a molecular level. Since the polymerization of the vinyl polymers and crosslinking of the (A) polymers is done at the same time in emulsion inherently and necessarily, at least some chains of the two polymers are interlaced on a molecular level. For that matter, the claims limitation of claim 20 is also met by the reference disclosing polymerization of vinyl monomers and crosslinking of polyisobutylene takes place concurrently.

Claims 1-3, 7-10, 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2002-105341 to Kanegafuchi Chemical Ind., (hereinafter Kanegafuchi '341").

The rejection stands as per reasons of record. The claimed invention is limited to "interpenetrating polymers", which limitation is met by any polymer chains interlacing on a molecular level. Since the blending of the polymers is made at high temperatures, and one of the polymers is crosslinked subsequent to the melt mixing the polymers,

inherently and necessarily, at least some chains of the two polymers are interlaced on a molecular level.

***Claim Rejections - 35 USC § 102/103***

Claim 21 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kanegafuchi '607.

The disclosure of the reference is discussed in the previous office action and above. As noted above, the reference discloses concurrent polymerization of vinyl monomers and crosslinking of polyisobutylene. The reference does not disclose polymerization of the vinyl monomers subsequent to the crosslinking of the polyisobutylene (other than grafting additional vinyl monomers). However, since the crosslinking takes place using the monomers that have both reactive groups (crosslinking) groups AND vinyl unsaturation that participates in co-polymerization with vinyl monomers, the final product will be the same whether the crosslinking monomers are first used for crosslinking (reacting) with PIB and then co-polymerized with vinyl monomers or first co-polymerized with vinyl monomers and then reacted with reactive groups of PIB. The burden is shifted to the applicants to provide factual evidence to the contrary.

***Claim Rejections - 35 USC § 103***

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Kanegafuchi '341 or Kanegafuchi '607 in combination with US Patent 4,939,184 to Kennedy, (hereinafter "Kennedy '184")(of record).

The rejection stands as per reasons of record and the discussion of the claim limitations above.

### ***Response to Arguments***

Applicant's arguments filed 5-24-2010 have been fully considered but they are not persuasive. The applicants argue that the claimed limitation ""a mixture of interpenetrating polymers"" would necessarily convey to those of ordinary skill in the art structure imparted to the claimed invention by this term. The applicants further state that a definition of the term "interpenetrating polymer" as it is defined in the IUPAC is attached. Applicants submit that it is clear to those skill of skill in the art that an "interpenetrating polymer network" is a term that is recognized by those of skill in the art as having a particular structure distinguished from mixtures of polymers that do not have an interpenetrating structure. The examiner agrees that the term "Interpenetrating polymer networks" is a term of art that is understood by an ordinary artisan, and with some variations this term, although is not specifically limited to one definition provided by the applicants, in general, corresponds the provided definition. The examiner, however, disagrees that the claim limitation of "interpenetrating polymer" correspond to the accepted in the art term of ""Interpenetrating polymer networks" or IPN. The claim limitation lacks one of the operative terms "network", and simply refers to interpenetrating copolymers, which in, any reasonable interpretation, is met by simply

interpenetrating, or mixed on a molecular level, polymer chains. Thus, while the examiner agrees that true IPN are not formed by the process of Kanegafuchi '607 results in polymer networks that form chemical bond, the reference still discloses "interpenetrating polymers", since the polymer (A) and polymer obtained from vinyl monomers (B) form are interpenetrating polymers, since they form as composition interlaced on a molecular level. It is noted that the examiner disagrees with the applicants characterization of the resin particles disclosed in Kanegafuchi '607 as "resin particles of Kanegafuchi '607 are made by first crosslinking a polymer in the absence of conditions which would cause a vinyl monomer to polymerize (see the Abstract of Kanegafuchi '607). After a first polymer is crosslinked, a mixture of the crosslinked product and a vinyl monomer is emulsified in an aqueous medium and then subjected to radical polymerization such that an interpenetrating polymer network is not formed." (Emphasis added). The first polymer is NOT crosslinked before it is emulsified with vinyl monomers. In fact, it is being crosslinked by the monomers that are copolymerized with vinyl monomers, and can

With respect to the polymers disclosed in Kanegafuchi '341, as discussed above, the reference discloses at least some interpenetrating polymers chains, that is sufficient to met the claimed limitation of "interpenetrating polymers".

The examiner wishes to comment that she disagrees with the with the applicants characterization of the compositions disclosed in Kanegafuchi '3114 as obtained by "mixing an already-polymerized and cured reinforcing polymer (e.g., SEBS (styrene-ethylene-butylene-styrene)) with a mixture comprising a polyisobutene and a

crosslinking agent (see the examples in the English machine translation of Kanegafuchi '341). Here it is evident that there is no curing or polymerization of monomer units of a reinforcing polymer because the reinforcing polymer is already in a fully polymerized form." In fact, 1) the SEBS polymer of example 3 is not cures, i.e., it is uncured thermoplastic polymer, and 2) the curing or crosslinking of the isobutylene polymer takes place subsequent to mixing of the polymers, which even satisfies some common definitions of IPN. See, for example, as discussed by Dr. Mauritz, IPN is formed when two polymers are synthesized and/or crosslinked in the presence of the other (emphasis added). This definition is taken from Sperling, L. H. "Interpenetrating Polymer Networks and Related Materials", Plenum Press, 1981, Chpt. 1. Similar definitions appear in many other references. In the instant case, PIB is crosslinked in the presence of another polymer, thus satisfying the definition of IPN.

Therefore, the invention as claimed is still considered to be unpatentable over the disclosure of the cited reference.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/  
Primary Examiner, Art Unit 1796

Irina S. Zemel  
Primary Examiner  
Art Unit 1796

ISZ



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